Impact of Nobilis Escherichia coli inac vaccine on parent stock mortality, first week mortality of broilers, and population diversity of E. coli in vaccinated flocks

Olsen, Rikke Heidemann; Christensen, Henrik; Bisgaard, Magne

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Impact of Nobilis *Escherichia coli* inac vaccine on parent stock mortality, first week mortality of broilers, and population diversity of E. coli in vaccinated flocks

Gregersen R.H., Christensen H. and Bisgaard M.
Department of Veterinary Disease Biology, Faculty of Life Sciences, University of Copenhagen, 4 Stigbøjlen, DK-1870 Frederiksberg C, Denmark
hech@life.ku.dk

Although extraintestinal *Escherichia coli* infections (ExPEC) have been known for more than a century, these infections still remain among the most significant diseases in poultry worldwide, resulting in heavy losses due to mortality, production losses including downgrading and condemnations, in addition to treatment costs. Research has increasingly focused on the pathogenesis of avian pathogenic E. coli (APEC) and the pathotype itself. However, little is known on this subject and unlike other pathogenic groups of E. coli, no single trait or groups of traits defines the APEC pathotype. For the same reason vaccine design has been troublesome and efficacy difficult to document. Studies of a large collection of APEC isolates from various countries, however, demonstrated that a high prevalence (78%) of isolates expressed F11 fimbriae (Van den Bosch et al, 1993). The aims of the present investigation therefore were to examine the impact of a commercial F11 based vaccine on so-called normal mortality due to E. coli in broiler parents and 1st week mortality in broilers. In addition, the genetic diversity of E. coli populations in vaccinated and control flocks were investigated. 20,000 broiler parents vaccinated during rearing with Nobilis E. coli inac according to the manufactures were placed in two out of four identical houses, the remaining two houses on the same farm housing 20,000 unvaccinated controls from the same rearing farm. During the whole production period, dead birds randomly selected from all four houses were received for post mortem examinations. Except from increased mortality due to cannibalism no specific disease outbreaks were observed during the production period. A total of 272 dead birds were received for post mortem examinations including 117 and 155 from vaccinated and control birds, respectively. Mortality due to E. coli infections made up 12% in vaccinated birds compared to 26% in unvaccinated birds. Average first week mortality among broiler flocks investigated originating from vaccinated and control birds constituted 1.1% and 1.3%, respectively, while the condemnation per cent made up 0.8 and 0.9% for the same flocks. Characterization of E. coli isolates obtained including fimbrial type (Bell et al., 2002), MLST (Adiri et al., 2003) and classification with the phylogenetic lines demonstrated for E. coli (Clermont et al., 2000) are in progress. In addition, characterization of the genetic diversity of E. coli demonstrated in dust samples from houses with vaccinated and control birds, respectively, are in progress. Results obtained will be presented and discussed.

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